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THE ANNALS

AND

MAGAZINE OF NATURAL HISTORY.

[SEVENTH SERIES.]

"..... per litora spargite muscum,
Naiades, et circum vitreos considite fontes:
Pollice virgineo teneros hic carpite flores:
Floribus et pictum, divæ, replete canistrum.
At vos, o Nymphæ Craterides, ite sub undas;
Ite, recurvato variata corallia trunco
Vellite muscosis e rupibus, et mihi conchas
Ferte, Deæ pelagi, et pingui conchylia succo.
N. Parthenii Giannettasi, Ecl. 1.

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I.—*Report on the Copepoda obtained by Mr. George Murray, F.R.S., during the Cruise of the 'Oceana' in 1898. By ISAAC C. THOMPSON, F.L.S.*

[Plates I.–VII.]

COPEPODA.

THE Copepoda from the 'Oceana' collection were enclosed in forty bottles, each representing a separate station. They were all taken by tow-net at depths varying from the surface to 1770 fathoms, and were at once preserved in formalin (5 per cent. solution). The collection contained in all 89 species, divided into families as follows:—

Calanidæ	35 species.
Centropagidæ	29 „
Pontellidæ	5 „
Mormonillidæ	1 „
Cyclopida	3 „
Harpacticidæ	8 „
Oncaeidæ	3 „
Sapphirinidæ	2 „
Corycæidæ	3 „
	—
	89 „

Of these, four species are new to science, viz.:—

Euchæta oceana.

Xanthocalanus Giesbrechti.

Scolecithrix chelifera.

Isochæta longisetosus.

The males of several species of which the females only were hitherto known have been found, but many of them unfortunately only in an immature stage. The known geographical range of a considerable number of species has been largely increased through this collection. The tow-nets used were open ones and were lowered to ascertained depths and then trailed at the depth indicated and brought open to the surface. Therefore some surface or near surface and intermediate forms may probably have been captured during the descent and ascent of the nets, and should be subtracted from the total catch of the deeper nets. Mr. Murray's method of using the tow-nets during the 'Oceana' cruise is described in a paper by him entitled "Exploration of the Intermediate Depths of the Ocean" (Journal of the Royal Geographical Society, vol. xiii. p. 297, 1899). Some valuable particulars as to the distribution of life at various depths are thus recorded. On p. 6 a table is given showing the depth at each station and also the number of species found. From this it appears generally that the smallest number of species existed at or near the surface, and the largest variety at a depth of 1070 fathoms. Between that and 1510 fathoms the numbers are rather less, but average fairly; while below that, possibly as a coincidence, the numbers decline until the greatest depth of 1770 fathoms was reached. Throughout the paper I have mainly followed the excellent classification and nomenclature of Dr. Giesbrecht, to whom I desire to express my sincere obligations for much help; and I am also greatly indebted to the works of my friends Dr. Brady, F.R.S., and Messrs. T. and A. Scott for valued assistance.

List of Species and Stations of Occurrence.

Family CALANIDÆ.

Calanus finmarchicus, *Gunner*.—2 b, 2 d, 2 e, 2 f, 4 a, 4 d, 4 f, 4 g, 4 h, 4 j, 4 k, 5 a, 5 b, 5 c, 5 d, 5 e, 5 f, 5 g, 5 h, 5 j, 5 k, 5 l, 6 a, 6 c, 6 d, 6 f, 6 g, 6 h.

— *cristatus*, *Krøyer*.—5 h, 5 k, 6 g.

— *gracilis*, *Dana*.—2 c, 4 c, 4 h, 5 e, 5 f, 5 g.

— *tenuicornis*, *Dana*.—6 h.

Eucalanus elongatus, *Dana*.—5 e, 5 f, 5 g, 5 h, 5 j, 5 k, 5 l, 6 g.

— *attenuatus*, *Dana*.—2 f, 2 g, 4 a, 4 d, 4 f, 4 h, 4 k, 5 b, 5 c, 5 d, 5 e, 5 j, 5 k, 5 l, 6 f.

- Rhincalanus nasutus*, Giesb.—4 a, 4 d, 4 f, 4 h, 4 j, 4 k, 5 d, 5 e, 5 f, 5 h, 5 j, 5 k, 5 l.
 — cornutus, Dana.—4 h, 4 j, 4 k, 5 c, 5 d, 5 e, 5 g, 5 j, 5 k, 6 g.
Mecynocera Clausi, Thompson.—2 g, 5 b, 5 d, 5 g.
Pseudocalanus elongatus, Boeck.—1 a, 2 a, 1 b, 1 c, 2 b, 2 d, 4 c, 4 d, 4 g, 4 k, 5 a, 5 b, 5 c, 6 b, 6 d, 6 e, 6 h.
Spinocalanus abyssalis, Giesb.—4 j.
Ætideus armatus, Brady.—2 g, 4 h, 4 j, 4 k, 5 e, 6 b.
Bradyidius armatus, Vanhöffen.—4 j, 4 k, 5 b.
Gaëtanus miles, Giesb.—2 f, 2 g, 4 a, 4 d, 4 f, 4 k, 5 b, 5 c, 5 e, 5 f, 5 g, 5 h, 5 j, 5 k, 6 f, 6 g, 6 h.
 — armiger, Giesb.—4 h, 5 c, 5 d, 5 e, 5 g, 5 h, 5 j.
Gaidius pungens, Giesb.—5 g.
Euchirella pulchra, Lubbock.—4 c, 4 g.
 — rostrata, Brady.—4 g, 6 g.
 — curticauda, Giesb.—4 j, 5 c, 5 e, 5 f, 5 h, 5 j, 5 l, 6 f, 6 g.
Euchaeta marina, Prestand.—2 c, 2 d, 4 c, 4 d, 4 h, 4 j, 4 k, 4 l, 5 c, 5 d, 5 e, 5 g, 5 h, 5 j, 5 k, 5 l, 6 f, 6 g.
 — acuta, Giesb.—4 f.
 — Hessei, Brady.—4 g.
 — oceana, sp. n.—4 k, 5 f, 5 k.
 — spinosa, Giesb.—5 d, 5 e.
Scolecithrix Danæ, Lubbock.—4 j.
 — Bradyi, Giesb.—5 f, 5 h.
 — auropecten, Giesb.—5 i.
 — major, T. Scott.—4 a.
 — persecans, Giesb.—5 h.
 — securifrons, T. Scott.—5 d, 5 f, 6 f, 6 g.
 — frontalis, Giesb.—4 d, 5 e, 5 j, 6 g.
 — cristata, Giesb.—5 e.
 — chelifera, sp. n.—5 e, 5 f.
Xanthocalanus Giesbrechti, sp. n.—5 j.
Phaëna spinifera, Claus.—2 c, 2 e, 2 f, 4 a, 5 e, 5 h, 5 k.

Family CENTROPAGIDÆ.

- Centropages typicus*, Kröyer.—2 a, 2 d, 2 e, 2 f, 4 k.
 — Chierchia, Giesb.—1 a.
 — hamatus, Lillj.—1 a, 2 a, 2 b, 2 c.
Metridia longa, Lubbock.—1 c, 2 c, 2 d, 2 e, 2 f, 2 g, 4 b, 4 c, 4 d, 4 f, 4 g, 4 h, 4 j, 4 k, 4 l, 5 a, 5 b, 5 c, 5 d, 5 e, 5 f, 5 g, 5 h, 5 j, 5 k, 5 l, 6 b, 6 c, 6 d, 6 f, 6 g, 6 h.
 — venusta, Giesb.—4 j.
 — princeps, Giesb.—5 h, 5 k.
Pleuromamma abdominalis, Giesb.—2 c, 2 d, 2 e, 2 f, 2 g, 4 b, 4 c, 4 d, 4 f, 4 g, 4 h, 4 j, 4 k, 4 l, 5 b, 5 c, 5 d, 5 e, 5 f, 5 g, 5 h, 5 j, 5 k, 5 l, 6 d, 6 f, 6 g.
 — gracilis, Claus.—4 j.
Lucicutia longicornis, Giesb.—5 e.
 — flavicornis, Claus.—4 f, 4 j, 4 k, 5 c, 5 d, 5 f, 5 g, 5 j, 5 l, 6 g.
 — longiserrata, Giesb.—4 f.
 — Clausi, Giesb.—6 f.
Isochaeta longisetosus, sp. n.—6 g.
Heterorhabdus spinifrons, Claus.—4 h, 4 j, 4 k, 4 l, 5 d, 5 e, 5 f, 5 g, 5 h, 5 j, 5 l, 6 d, 6 f.
 — papilliger, Claus.—5 j.
 — abyssalis, Giesb.—4 c, 5 e, 5 f.

- Heterorhabdus Clausi*, *Giesb.*—5 *h.*
 — *vipera*, *Giesb.*—5 *d*, 5 *h.*
 — *longicornis*, *Giesb.*—5 *j.*
Haloptilus longicornis, *Claus.*—2 *f*, 4 *f*, 4 *g*, 4 *l.*
 — *ornatus*, *Giesb.*—4 *k*, 5 *c.*
 — *spiniceps*, *Giesb.*—5 *b.*
Augaptilus filigerus, *Claus.*—4 *d*, 4 *f.*
 — *palumboi*, *Giesb.*—5 *e.*
 — *Rattrayi*, *T. Scott.*—5 *e.*
 — *hecticus*, *Giesb.*—4 *f.*
 — *longicaudatus*, *Claus.*—5 *e*, 5 *j.*
Arietellus setosus, *Giesb.*—5 *b*, 5 *g.*
Phyllopus bidentatus, *Brady.*—6 *g.*

Family PONTELLIDÆ.

- Anomalocera Patersoni*, *Templeton.*—1 *a.*
Acartia Clausi, *Giesb.*—1 *b*, 2 *b*, 2 *c*, 2 *d*, 2 *e*, 2 *f*, 2 *g*, 4 *k*, 5 *a*, 5 *b*, 6 *b*, 6 *c*,
 6 *f*, 6 *g*, 6 *h.*
 — *longiremis*, *Lillj.*—1 *a*, 2 *a*, 1 *c.*
 — *discaudata*, *Giesb.*—2 *d.*
 — *centrura*, *Giesb.*—5 *c.*

Family MORMONILLIDÆ.

- Mormonilla phasma*, *Giesb.*—4 *f*, 4 *j*, 4 *k*, 5 *c*, 5 *d*, 5 *e*, 5 *h*, 5 *j*, 5 *k.*

Family CYCLOPIDÆ.

- Oithona similis*, *Claus.*—1 *a*, 2 *a*, 1 *b*, 1 *c*, 2 *b*, 2 *c*, 2 *d*, 2 *e*, 2 *f*, 2 *g*, 4 *a*, 4 *b*,
 4 *c*, 4 *d*, 4 *f*, 4 *g*, 4 *h*, 4 *j*, 4 *k*, 4 *l*, 5 *a*, 5 *b*, 5 *c*, 5 *d*, 5 *e*, 5 *f*, 5 *g*, 5 *h*,
 5 *j*, 5 *k*, 5 *l*, 6 *b*, 6 *c*, 6 *e*, 6 *f*, 6 *g*, 6 *h.*
 — *nana*, *Giesb.*—5 *k.*
Thorellia brunnea, *Boeck.*—2 *b.*

Family HARPACTICIDÆ.

- Microsetella atlantica*, *Brady & Robertson.*—2 *b*, 2 *c*, 2 *d*, 2 *e*, 2 *f*, 2 *g*, 4 *b*,
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 — *rosea*, *Dana.*—4 *j*, 4 *k*, 5 *b*, 5 *c*, 5 *d*, 5 *e*, 5 *f*, 5 *g*, 5 *h*, 5 *j*, 6 *a*, 6 *b*, 6 *c*,
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Setella gracilis, *Dana.*—4 *d*, 4 *k.*
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Delavalia palustris, *Brady.*—5 *e.*
Clytemnestra scutellata, *Dana.*—5 *d.*
Ægisthus mucronatus, *Giesb.*—2 *f*, 2 *g*, 4 *f*, 4 *h*, 4 *j*, 6 *d*, 6 *f*, 6 *g.*
 — *aculeatus*, *Giesb.*—4 *b.*

Family ONCÆIDÆ.

- Oncæa mediterranea*, *Claus.*—4 *d*, 4 *f*, 4 *g*, 4 *h*, 4 *i*, 4 *k*, 5 *b*, 5 *c*, 5 *f*, 5 *g*,
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 — *minuta*, *Giesb.*—4 *d*, 4 *f*, 6 *h.*
Conæa rapax, *Giesb.*—2 *d*, 2 *e*, 2 *f*, 2 *g*, 4 *c*, 4 *d*, 4 *f*, 4 *g*, 4 *h*, 4 *i*, 4 *k*, 5 *b*,
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Family CORYCÆIDÆ.

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Table of Stations, Depths, and number of Species found at each.

Station.	Depth (fathoms).	Number of Species found.
1 a.	Surface.	6
2 a.	do.	5
1 b.	20	3
1 c.	50	4
2 b.	270	9
2 c.	270	9
2 d.	374	12
2 e.	464	9
2 f.	620	14
2 g.	650	12
4 a.	Surface.	6
4 a.	1170	12
4 b.	790	5
4 c.	920	10
4 d.	1065	17
4 f.	1275	20
4 g.	1370	12
4 h.	1470	16
4 j.	1570	22
4 k.	1670	24
4 l.	1770	6

Station.	Depth (fathoms).	Number of Species found.
5 a.	Surface.	5
5 b.	500	16
5 c.	810	19
5 d.	950	21
5 e.	1070	32
5 f.	1190	21
5 g.	1300	19
5 h.	1410	24
5 j.	1510	25
5 k.	1610	20
5 l.	1710	14
6 a.	150	4
6 b.	230	8
6 c.	310	7
6 d.	375	9
6 e.	440	2
6 f.	510	15
6 g.	560	20
6 h.	610	11

1 a STATION { Lat. 52° 4'·5 N. } Surface. Nov. 19, 1898.
 { Long. 11° 20'·1 W. }

Pseudocalanus elongatus.	Anomalocera Patersoni.
Centropages hamatus.	Acartia longiremis.
— Chierchia.	Oithona similis.

2 a STATION { Lat. 52° 4'·5 N. } Surface. Nov. 19, 1898.
 { Long. 12° 27' W. }

Pseudocalanus elongatus.	Acartia longiremis.
Centropages hamatus.	Oithona similis.
— typicus.	

1 b STATION { Lat. 52° 4'·5 N. } 20 fath. Nov. 19, 1898.
 { Long. 11° 20'·1 W. }

Pseudocalanus elongatus.	Oithona similis.
Acartia Clausi.	

1 c STATION { Lat. 52° 4'·5 N. } 50 fath. Nov. 19, 1898.
 { Long. 11° 20'·1 W. }

Pseudocalanus elongatus.	Acartia longiremis.
Metridia longa.	Oithona similis.

2 b STATION { Lat. 52° 4' 5 N. } 270 fath. Nov. 19, 1898.
 { Long. 12° 27' W. }

Calanus finmarchicus.
Pseudocalanus elongatus.
Centropages hamatus.
Acartia Clausi.
Oithona similis.

Thorellia brunnea.
Microsetella atlantica.
Corycæus anglicus.
Lichomolgus liber.

2 c STATION { Lat. 52° 4' 5 N. } 270 fath. Nov. 19, 1898.
 { Long. 12° 27' W. }

Calanus gracilis.
Euchæta marina.
Phaëna spinifera.
Centropages hamatus.
Metridia longa.

Pleuromamma abdominalis.
Acartia Clausi.
Oithona similis.
Microsetella atlantica.

2 d STATION { Lat. 52° 4' 5 N. } 374 fath. Nov. 19, 1898.
 { Long. 12° 27' W. }

Calanus finmarchicus.
Pseudocalanus elongatus.
Euchæta marina.
Centropages typicus.
Metridia longa.
Pleuromamma abdominalis.

Acartia Clausi.
 — *discaudata*.
Oithona similis.
Microsetella atlantica.
Corycæus anglicus.
Conæa rapax.

2 e STATION { Lat. 52° 4' 5 N. } 464 fath. Nov. 19, 1898.
 { Long. 12° 27' W. }

Calanus finmarchicus.
Phaëna spinifera.
Centropages typicus.
Metridia longa.
Pleuromamma abdominalis.

Acartia Clausi.
Oithona similis.
Microsetella atlantica.
Conæa rapax.

2 f STATION { Lat. 52° 4' 5 N. } 620 fath. Nov. 19, 1898.
 { Long. 12° 27' W. }

Calanus finmarchicus.
Eucalanus attenuatus.
Gaëtanus miles.
Phaëna spinifera.
Centropages typicus.
Haloptilus longicornis.
Metridia longa.

Pleuromamma abdominalis.
Acartia Clausi.
Oithona similis.
Microsetella atlantica.
Ægisthus mucronatus.
Corycæus venustus.
Conæa rapax.

2 g STATION { Lat. 52° 4' 5 N. } 650 fath. Nov. 19, 1898.
 { Long. 12° 27' W. }

Eucalanus attenuatus.
Mecynocera Clausi.
Ætideus armatus.
Gaëtanus miles.
Metridia longa.
Pleuromamma abdominalis.

Oithona similis.
Acartia Clausi.
Ægisthus mucronatus.
Microsetella atlantica.
Conæa rapax.
Corycæus venustus.

4 a STATION { Lat. 52° 27'·6 N. } Surface. Nov. 20, 1898.
 { Long. 15° 40'·0 W. }

Calanus finmarchicus.	Centropages hamatus.
Mecynocera Clausi.	Pleuromamma abdominalis.
Pseudocalanus elongatus.	Oithona similis.

4 a STATION { Lat. 52° 27'·6 N. } 1170 fath. Nov. 20, 1898.
 { Long. 15° 40'·0 W. }

Calanus finmarchicus.	Phaëna spinifera.
Eucalanus attenuatus.	Metridia longa.
Rhincalanus nasutus.	Pleuromamma abdominalis.
Gaëtanus miles.	Oithona similis.
Euchæta marina.	Conæa rapax.
Scolecithrix major.	Microsetella atlantica.

4 b STATION { Lat. 52° 27'·6 N. } 790 fath. Nov. 20, 1898.
 { Long. 15° 40'·0 W. }

Metridia longa.	Ægisthus aculeatus.
Pleuromamma abdominalis.	Microsetella atlantica.
Oithona similis.	

4 c STATION { Lat. 52° 27'·6 N. } 920 fath. Nov. 20, 1898.
 { Long. 15° 40' W. }

Calanus gracilis.	Pleuromamma abdominalis.
Pseudocalanus elongatus.	Heterorhabdus abyssalis.
Euchirella pulchra.	Oithona similis.
Euchæta marina.	Conæa rapax.
Metridia longa.	Microsetella atlantica.

4 d STATION { Lat. 52° 27'·6 N. } 1065 fath. Nov. 20, 1898.
 { Long. 15° 40'·0 W. }

Calanus finmarchicus.	Pleuromamma abdominalis.
Eucalanus attenuatus.	Augaptilus filigerus.
Rhincalanus nasutus.	Oithona similis.
Pseudocalanus elongatus.	Conæa rapax.
Gaëtanus miles.	Onca mediterranea.
— armiger.	— minuta.
Euchæta marina.	Microsetella atlantica.
Scolecithrix frontalis.	Setella gracilis.
Metridia longa.	

4 f STATION { Lat. 52° 27'·6 N. } 1275 fath. Nov. 20, 1898.
 { Long. 15° 40'·0 W. }

Calanus finmarchicus.	Augaptilus hecticus.
Eucalanus attenuatus.	— filigerus.
Rhincalanus nasutus.	Oithona similis.
Gaëtanus miles.	Ægisthus mucronatus.
Euchæta acuta.	Onca minuta.
Metridia longa.	— mediterranea.
Pleuromamma abdominalis.	Conæa rapax.
Lucicutia flavicornis.	Microsetella atlantica.
— longiserrata.	— rosea.
Haloptilus longicornis.	Mormonilla phasma.

4 g STATION { Lat. 52° 27'·6 N. } 1370 fath. Nov. 20, 1898.
 { Long. 15° 40'·0 W. }

Calanus finmarchicus.	Pleuromamma abdominalis.
Pseudocalanus elongatus.	Haloptilus longicornis.
Euchirella pulchra.	Oithona similis.
— rostrata.	Conœa rapax.
Euchaeta Hessei.	Onœa mediterranea.
Metridia longa.	Microsetella atlantica.

4 h STATION { Lat. 52° 27'·6 N. } 1470 fath. Nov. 20, 1898.
 { Long. 15° 40' W. }

Calanus finmarchicus.	Metridia longa.
— gracilis.	Pleuromamma abdominalis.
Eucalanus attenuatus.	Heterorhabdus spinifrons.
Rhincalanus nasutus.	Oithona similis.
— cornutus.	Ægisthus mucronatus.
Ætideus armatus.	Conœa rapax.
Gaëtanus armiger.	Onœa mediterranea.
Euchaeta marina.	Microsetella atlantica.

4 j STATION { Lat. 52° 27'·6 N. } 1570 fath. Nov. 20, 1898.
 { Long. 15° 40'·0 W. }

Calanus finmarchicus.	Pleuromamma abdominalis.
Rhincalanus nasutus.	— gracilis.
— cornutus.	Lucicutia flavicornis.
Spinocalanus abyssalis.	Heterorhabdus spinifrons.
Ætideus armatus.	Mormonilla phasma.
Bradyidius armatus.	Oithona similis.
Euchirella curticauda.	Microsetella atlantica.
Euchaeta marina.	— rosea.
Scolecithrix Danæ.	Onœa mediterranea.
Metridia longa.	Ægisthus mucronatus.
— venusta.	Conœa rapax.

4 k STATION { Lat. 52° 27'·6 N. } 1670 fath. Nov. 20, 1898.
 { Long. 15° 40'·0 W. }

Calanus finmarchicus.	Pleuromamma abdominalis.
Eucalanus attenuatus.	Leucicutia flavicornis.
Rhincalanus nasutus.	Heterorhabdus spinifrons.
— cornutus.	Haloptilus ornatus.
Pseudocalanus elongatus.	Acartia Clausi.
Gaëtanus miles.	Mormonilla phasma.
Bradyidius armatus.	Oithona similis.
Ætideus armatus.	Microsetella atlantica.
Euchaeta oceana, sp. n.	— rosea.
— marina.	Setella gracilis.
Centropages typicus.	Onœa mediterranea.
Metridia longa.	Conœa rapax.

4 l STATION { Lat. 52° 27'·6 N. } 1770 fath. Nov. 20, 1898.
 { Long. 15° 40'·0 W. }

Euchaeta marina.	Haloptilus longicornis.
Metridia longa.	Heterorhabdus spinifrons.
Pleuromamma abdominalis.	Oithona similis.

5 a STATION { Lat. 52° 18'·1 N. } Surface. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.	Acartia Clausi.
Pseudocalanus elongatus.	Oithona similis.
Metridia longa.	

5 b STATION { Lat. 52° 18'·1 N. } 500 fath. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.	Haloptilus spiniceps.
Eucalanus attenuatus.	Arietellus setosus.
Mecynocera Clausi.	Acartia Clausi.
Bradydium armatus.	Oithona similis.
Pseudocalanus elongatus.	Microsetella rosea.
Gaëtanus miles.	Oncaea mediterranea.
Metridia longa.	Conœa rapax.
Pleuromamma abdominalis.	Corina granulosa.

5 c STATION { Lat. 52° 18'·1 N. } 810 fath. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.	Haloptilus ornatus.
Eucalanus attenuatus.	Acartia centrura.
Rhincalanus cornutus.	Lucicutia flavicornis.
Pseudocalanus elongatus.	Mormonilla phasma.
Gaëtanus miles.	Oithona similis.
— armiger.	Microsetella atlantica.
Euchirella curticauda.	— rosea.
Euchæta marina.	Oncaea mediterranea.
Metridia longa.	Sapphirina salpæ.
Pleuromamma abdominalis.	

5 d STATION { Lat. 52° 18'·1 N. } 950 fath. Nov. 21, 1898.
 { Long. 15° 50'·9 W. }

Calanus finmarchicus.	Lucicutia flavicornis.
Eucalanus attenuatus.	Heterorhabdus spinifrons.
Rhincalanus nasutus.	— vipera.
— cornutus.	Mormonilla phasma.
Mecynocera Clausi.	Oithona spinifrons.
Gaëtanus armiger.	Microsetella atlantica.
Euchæta marina.	— rosea.
— spinosa.	Euterpe acutifrons.
Scolecithrix securifrons.	Clytemnestra scutellata.
Metridia longa.	Conœa rapax.
Pleuromamma abdominalis.	

5 e STATION { Lat. 52° 18'·1 N. } 1070 fath. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.	Ætideus armatus.
— gracilis.	Gaëtanus miles.
Eucalanus attenuatus.	— armiger.
— elongatus.	Euchirella curticauda.
Rhincalanus nasutus.	Euchæta marina.
— cornutus.	— spinosa.

Scolecithrix frontalis.
 — auropecten.
 — cristata.
 — chelifer.
Phaëna spinifera.
Metridia longa.
Pleuromamma abdominalis.
Lucicutia longicornis.
Heterorhabdus abyssalis.
 — longicornis.

Heterorhabdus spinifrons.
Augaptilus longicaudatus.
 — palumboi.
 — Rattrayi.
Mormonilla phasma.
Oithona similis.
Microsetella atlantica.
 — rosea.
Conæa rapax.
Delavalia palustris.

5 f STATION { Lat. 52° 18'·1 N. } 1190 fath. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.
 — gracilis.
Eucalanus elongatus.
Rhincalanus nasutus.
Gaëtanus miles.
Euchirella curticauda.
Euchæta oceana.
Scolecithrix Bradyi.
 — auropecten.
 — securifrons.
 — chelifer.

Metridia longa.
Pleuromamma abdominalis.
Lucicutia flavicornis.
Heterorhabdus spinifrons.
 — abyssalis.
Oithona similis.
Microsetella atlantica.
 — rosea.
Oncæa mediterranea.
Conæa rapax.

5 g STATION { Lat. 52° 18'·1 N. } 1300 fath. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.
 — gracilis.
Eucalanus elongatus.
Rhincalanus cornutus.
Mecynocera Clausi.
Gaëtanus miles.
 — armiger.
Gaidius pungens.
Euchæta marina.
Metridia longa.

Pleuromamma abdominalis.
Heterorhabdus spinifrons.
Lucicutia flavicornis.
Arietellus setosus.
Oithona similis.
Microsetella atlantica.
 — rosea.
Oncæa mediterranea.
Conæa rapax.

5 h STATION { Lat. 52° 18'·1 N. } 1410 fath. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.
 — cristatus.
Eucalanus elongatus.
Rhincalanus nasutus.
Euchirella curticauda.
Euchæta marina.
 — Hessei, var. similis.
Gaëtanus miles.
 — armiger.
Scolecithrix persecans.
 — Bradyi.
Phaëna spinifera.

Metridia longa.
 — princeps.
Pleuromamma abdominalis.
Heterorhabdus spinifrons.
 — Clausi.
 — vipera.
Mormonilla phasma.
Oithona similis.
Microsetella atlantica.
 — rosea.
Oncæa mediterranea.
Conæa rapax.

5 j STATION { Lat. 52° 18'·1 N. } 1510 fath. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.
Eucalanus elongatus.
 — *attenuatus*.
Rhincalanus nasutus.
 — *cornutus*.
Gaëtanus miles.
 — *armiger*.
Euchirella curticauda.
Euchæta marina.
Scolecithrix frontalis.
 — *auropecten*.
Xanthocalanus Giesbrechti.
Metridia longa.

Pleuromamma abdominalis.
Lucicutia flavicornis.
Heterorhabdus spinifrons.
 — *longicornis*.
 — *papilliger*.
Angaptilus longicaudatus.
Mormonilla phasma.
Oithona similis.
Microsetella atlantica.
 — *rosea*.
Oncaea mediterranea.
Conæa rapax.

5 k STATION { Lat. 52° 18'·1 N. } 1610 fath. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.
 — *cristatus*.
Eucalanus elongatus.
 — *attenuatus*.
Rhincalanus nasutus.
 — *cornutus*.
Gaëtanus miles.
Euchæta marina.
 — *oceana*.
Phaëna spinifera.

Metridia longa.
 — *princeps*.
Pleuromamma abdominalis.
Lucicutia longicornis.
Mormonilla phasma.
Oithona similis.
 — *nana*.
Microsetella atlantica.
Oncaea mediterranea.
Conæa rapax.

5 l STATION { Lat. 52° 18'·1 N. } 1710 fath. Nov. 21, 1898.
 { Long. 15° 53'·9 W. }

Calanus finmarchicus.
Eucalanus attenuatus.
 — *elongatus*.
Rhincalanus nasutus.
Euchirella curticauda.
Euchæta marina.
Metridia longa.

Pleuromamma abdominalis.
Heterorhabdus spinifrons.
Lucicutia flavicornis.
Oithona similis.
Microsetella atlantica.
Oncaea mediterranea.
Conæa rapax.

6 a STATION { Lat. 52° 20' N. } 150 fath. Nov. 22, 1898.
 { Long. 15° 7'·9 W. }

Calanus finmarchicus.
Microsetella atlantica.

Microsetella rosea.
Conæa rapax.

6 b STATION { Lat. 52° 20' N. } 230 fath. Nov. 22, 1898.
 { Long. 15° 7'·9 W. }

Pseudocalanus elongatus.
Ætideus armatus.
Metridia longa.
Acartia Clausi.

Oithona similis.
Microsetella atlantica.
 — *rosea*.
Conæa rapax.

6 c STATION { Lat. 52° 20' N. } 310 fath. Nov. 22, 1898.
 { Long. 15° 7'·9 W. }

Calanus finmarchicus.

Metridia longa.

Acartia Clausi.

Oithona similis.

Microsetella atlantica.

— *rosea*.

Conæa rapax.

6 d STATION { Lat. 52° 20' N. } 375 fath. Nov. 22, 1898.
 { Long. 15° 7'·9 W. }

Calanus finmarchicus.

Pseudocalanus elongatus.

Metridia longa.

Pleuromamma abdominalis.

Heterorhabdus spinifrons.

Microsetella atlantica.

— *rosea*.

Ægisthus mucronatus.

Conæa rapax.

6 e STATION { Lat. 52° 20' N. } 440 fath. Nov. 22, 1898.
 { Long. 15° 7'·9 W. }

Pseudocalanus elongatus.

Oithona similis.

6 f STATION { Lat. 52° 20' N. } 510 fath. Nov. 22, 1898.
 { Long. 15° 7'·9 W. }

Calanus finmarchicus.

Eucalanus attenuatus.

Gaëtanus miles.

Euchæta marina.

Euchirella curticauda.

Scolecithrix securifrons.

Metridia longa.

Pleuromamma abdominalis.

Lucicutia Clausi.

Heterorhabdus spinifrons.

Acartia Clausi.

Oithona similis.

Microsetella rosea.

Ægisthus mucronatus.

Conæa rapax.

6 g STATION { Lat. 52° 20' N. } 560 fath. Nov. 22, 1898.
 { Long. 15° 7'·9 W. }

Calanus finmarchicus.

— *cristatus*.

Eucalanus elongatus.

Rhincalanus cornutus.

Gaëtanus miles.

Euchirella curticauda.

— *rostrata*.

Euchæta marina.

Scolecithrix frontalis.

— *securifrons*.

Metridia longa.

Pleuromamma abdominalis.

Lucicutia flavicornis.

Isochæta longisetosus.

Phyllopus bidentatus.

Acartia Clausi.

Oithona similis.

Microsetella rosea.

Ægisthus mucronatus.

Conæa rapax.

6 h STATION { Lat. 52° 20' N. } 610 fath. Nov. 22, 1898.
 { Long. 15° 7'·9 W. }

Calanus finmarchicus.

— *tenuicornis*.

Pseudocalanus elongatus.

Gaëtanus miles.

Metridia longa.

Acartia Clausi.

Oithona similis.

Microsetella rosea.

— *atlantica*.

Onœa minuta.

Conœa rapax.

Calanus finmarchicus, Gunner.

1765. *Monoculus finmarchicus*, Gunner, Skr. Kjöbenh. Selsk. vol. x. p. 175, figs. 20-23.

This, probably the most abundant and widely distributed of all known Copepoda, occurred in twenty-five of the forty stations and at all depths from the surface to 1710 fathoms.

Calanus cristatus, Kröyer.

1848. *Calanus cristatus*, Kröyer, Naturh. Tidsskr. n. ser. vol. ii. pp. 547, 553, 607.

Three specimens only of this little-known species occurred in three separate gatherings at depths from 560 to 1510 fathoms. All appeared to be immature females, which, as Giesbrecht points out, is the only form known.

Calanus gracilis, Dana.

1849. *Calanus gracilis*, Dana, P. Amer. Ac. vol. ii. pp. 18, 24.

Its long graceful antennæ easily distinguish this species from all other *Calani*. It was sparingly found at six stations at depths of from 270 to 1300 fathoms.

Calanus tenuicornis, Dana.

1849. *Calanus tenuicornis*, Dana, *op. cit.* vol. ii. p. 15.

One specimen was found at 6 h Station at a depth of 610 fathoms, and two others at greater depth, the latter in an immature state.

Eucalanus elongatus, Dana.

1849. *Calanus* (part.), Dana, *op. cit.* vol. ii. p. 10.

This large and easily recognized species occurred at seven stations at from 560 to 1710 fathoms.

Eucalanus attenuatus, Dana.

1849. *Calanus attenuatus*, Dana, *op. cit.* vol. ii. p. 18.

Similar in appearance to *E. elongatus*, but readily distinguishable from the latter by its three-jointed abdomen, that species having four joints. It occurred at fifteen stations, only two of them, however, being those where *E. elongatus* was found, although at similar depths—920 to 1710 fathoms.

Rhincalanus nasutus, Giesbrecht.

1888. *Rhincalanus nasutus*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. iv. p. 334.

One of the largest of known Copepoda. It was very plentiful at the thirteen stations in which it occurred.

Rhincalanus cornutus, Dana.

1849. *Calanus cornutus*+*C. rostrifrons*, op. cit. vol. ii. p. 19.

Less plentiful than *R. nasutus*, occurring at ten stations and at similar depth to the latter—from 560 to 1710 fathoms.

Mecynocera Clausi, Thompson.

1888. *Mecynocera Clausi*, Thompson, Journ. Linn. Soc., Zool. vol. xx. p. 150.

A few specimens of this species, easily recognized by its long delicate antennæ, were found at four stations at depths from 500 to 1300 fathoms.

Pseudocalanus elongatus, Boeck.

1864. *Clausia elongata*, Boeck, Forh. Selsk. Christian. p. 10.

One of the commonest species round our own shores. It was present in nearly half the bottles of this collection, and at all depths from the surface to 1710 fathoms.

Spinocalanus abyssalis, Giesbrecht. (Pl. I. fig. 6.)

1888. *Spinocalanus abyssalis*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. iv. p. 235.

One specimen only, an immature male, was taken at 1570 fathoms. Fig. 6 shows the rudimentary fifth feet. The male of this species has not been previously reported.

Ætideus armatus, Brady.

1883. *Ætidius armatus*, Brady, Rep. Voy. 'Challenger,' vol. viii. p. 75.

Occurs at six stations at depths between 230 and 1670 fathoms. As remarked by Brady, "the strong curved rostrum and the remarkably elongated, spiniform, posterior thoracic segment distinguish this species at a glance from any other with which I am acquainted."

Bradyidius armatus, Vanhöffen.

1878. *Pseudocalanus armatus*, Brady, Cop. Brit. Isl. vol. i. p. 46.

The hitherto recorded area of distribution of this species

appears to be confined to British shores and as far north as Greenland. It occurs three times in this collection at depths of from 500 to 1670 fathoms.

Gaëtanus miles, Giesbrecht. (Pl. I. figs. 3, 4, 5.)

1888. *Gaëtanus miles*, Giesbrecht, Atti Acc. Lincei Rend. vol. iv. p. 335.

One or more of this readily recognized species occurred at 17 stations, almost all being females, and the few males found were immature. Noticing some slight variations between my specimens and Dr. Giesbrecht's figures, I sent some to Dr. Giesbrecht for identification, and received from him the following remarks upon them. He says:—"I believe them to be identical with *Gaëtanus miles*. There is resemblance in all specific characters I made out for *G. miles*, only the lamella on the basal joint of the maxillipeds is of somewhat different form, and there is a greater number of spiniform setæ on the inner margin of basal joint of the fourth foot in your specimen. My specimens of *G. miles* came from the Pacific, yours are Atlantic, so the named differences will be geographical varieties."

Gaëtanus armiger, Giesbrecht.

1888. *Gaëtanus armiger*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. iv. p. 335.

Less plentiful than the preceding species, being found at seven stations and very sparingly. Like the preceding, it has been hitherto reported by Giesbrecht from the Pacific Ocean and by Mr. T. Scott from the Gulf of Guinea only; so the known range of distribution of both is now widely extended.

Gaidius pungens, Giesbrecht. (Pl. I. fig. 7.)

1895. *Gaidius pungens*, Giesbrecht, Bull. Mus. Harvard, vol. xxv. p. 349.

One specimen only was found at Station 5 *g*—an immature male,—at a depth of 1300 fathoms. As the first male, I believe, recorded, it is unfortunate that it should be immature. Giesbrecht's previous record is the Pacific Ocean; so here again we have a widely extended range.

Euchirella pulchra, Lubbock.

1856. *Undina pulchra*, Lubbock, Tr. Ent. Soc. n. ser. vol. iv. p. 20.

Two specimens only were found at depths of 920 and 1370 fathoms.

Euchirella rostrata, Claus.

1866. *Undina rostrata*, Claus, Cop. Nizza, p. 11.

Two specimens were found at 560 and 1370 fathoms respectively.

Euchirella curticauda, Giesbrecht.

1888. *Euchirella curticauda*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. iv. p. 336.

Comparatively common throughout the collection, occurring at nine stations at varying depths from 810 to 1710 fathoms.

The crested head without rostrum, coupled with the dwarfed abdomen and caudal segments, easily distinguish this species.

Euchæta marina, Prestandrea.

1833. *Cyclops marinus*, Prestandrea, Effemeridi scientifiche e letterarie per la Sicilia, Palermo, vol. vi. p. 12.

A very widely distributed species throughout the Mediterranean and the Atlantic and Pacific Oceans, and occurring in the present collection at eighteen stations and at varying depths from 270 to 1770 fathoms.

Euchæta acuta, Giesbrecht.

1892. *Euchæta acuta*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 246.

One specimen only, a female, was taken at 1275 fathoms. It appears not to have been before reported except from the Mediterranean.

Euchæta Hessei, Brady.

1883. *Euchæta Hessei*, Brady, Rep. Voy. 'Challenger,' vol. viii. p. 63.

One specimen only apparently of this species was taken at 1370 fathoms. It had the strong prominent rostrum as described and figured by Brady, but being an immature specimen, a male, the fifth feet were not so complete as those he figures.

Euchæta Hessei, var. *similis*, T. Scott.

1893. *Euchæta Hessei*, var. *similis*, T. Scott, Tr. Linn. Soc. ser. 2, Zool. vol. vi. p. 58, pl. vi.

One specimen only, a male, was obtained at 1410 fathoms. It agreed in all respects with Scott's description of his variety of *E. Hessei*.

Euchaeta spinosa, Giesbrecht.1892. *Euchaeta spinosa*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 246.

A few specimens of this species, all females, occurred at two stations at depths of 950 and 1070 fathoms.

Euchaeta oceana, sp. n. (Pl. II. figs. 1-9.)

Length 6 millim. Cephalothorax (fig. 1) ovate, 4-jointed, first joint longer than the following three put together. Anteriorly there is a rounded central knob between the antennæ. Rostrum arising dorsally and looking like a central thorn. Eyes prominent. Anterior antennæ of the male 21-jointed, the relative lengths being as follows:—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
8	6	3	4	4	4	5	10	3	4	3	4	8	8	8	8	9	16	9	8	8

Short setæ extend along the upper surface, with long stout ones on the third, eighth, and twelfth joints. On the third to eighth joints are triangular-shaped papillæ (fig. 2)—two on each joint—a thin hair springing from the centre of each, the apex having a granular appearance. The branches of the posterior antennæ (fig. 3) are of nearly equal length. Maxilla (fig. 4) has numerous long stout bristles. Mandible (fig. 5) altogether devoid of any biting part, as is also the case with most species of *Euchaeta*. First pair of foot-jaws appear to be entirely absent, which is also a feature of the males of other species of this genus. The outer branch of the first four pairs of swimming-feet is 3-jointed. Inner branch of first pair (fig. 7) 1-jointed, second pair 2-jointed, and third and fourth pairs (fig. 8) 3-jointed. Fifth pair long and prehensile (fig. 9); the inner joint of each foot is 1-jointed. The right outer branch is 3-jointed, terminating in a strong spine. The left branch is 4-jointed, terminating in a strong spine, with fine setæ on the inner side near the apex and a small spine. Abdomen 5-jointed, the first segment very small. Caudal segments are rather longer than the breadth, and have a pair of small rounded papillæ between them.

Three specimens of this fine species (all males) were found in three separate bottles taken at depths of 1190 to 1670 fathoms. None appeared to be fully matured, the figures being taken from the one most fully developed. The rostrum, anterior antennæ, and fifth feet are the chief distinguishing features of this species.

Scolecithrix Danæ, Lubbock.

1856. *Undina Danæ*, Lubbock, Tr. Ent. Soc. Lond. n. ser. vol. iv. p. 15.

The genus *Scolecithrix* has proved to be the best represented in this collection, furnishing nine species, one of them (*S. chelifera*) being new to science. The species before us—*S. Danæ*—one of the most widely diffused throughout the great oceans, occurs only once in the present collection at a depth of 1570 fathoms.

Scolecithrix Bradyi, Giesbrecht.

1888. *Scolecithrix Bradyi*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. iv. p. 337.

About as widely distributed as the previous species, occurring here at two stations at depths of 1190 and 1410 fathoms.

Scolecithrix auropecten, Giesbrecht.

1892. *Scolecithrix auropecten*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 266.

One specimen (a female), agreeing in all respects with Giesbrecht's description, was found at 1510 fathoms. The male remains unknown.

Scolecithrix major, T. Scott.

1893. *Scolecithrix major*, T. Scott, Tr. Linn. Soc. ser. 2, Zool. vol. vi. p. 52.

This appears to be a very rare species, the only previous record by Mr. Scott being one specimen from the Gulf of Guinea, with which my only specimen taken at 920 fathoms agrees.

Scolecithrix persecans, Giesbrecht.

1895. *Scolecithrix persecans*, Giesbrecht, Bull. Mus. Harvard, vol. xxv. p. 253.

One specimen (a male fully matured) was taken at 1410 fathoms. Its peculiar long prehensile fifth feet figured by Giesbrecht are very diagnostic. The female is unknown. Giesbrecht's specimen was from the Pacific, mine from the Atlantic, so increasing its known range.

Scolecithrix securifrons, T. Scott.

1893. *Scolecithrix securifrons*, T. Scott, Tr. Linn. Soc. ser. 2, Zool. vol. vi. p. 47.

Several specimens of this species, easily recognizable by

its high median crested head, were found at four stations at depths from 510 to 1190 fathoms.

Scolecithrix frontalis, Giesbrecht.

1895. *Lophothrix frontalis*, Giesbrecht, Bull. Mus. Harvard, vol. xxv. p. 254.

A few specimens were found at four stations at a depth of from 560 to 1510 fathoms. All were females, the male being unknown. It had previously only been reported from the Pacific Ocean.

Scolecithrix cristata, Giesbrecht. (Pl. III. figs. 1-5.)

1893. *Amalophora magna*, T. Scott, Tr. Linn. Soc. ser. 2, Zool. vol. vi. p. 55.

Two specimens (male and female) were found at two separate stations at depths of 950 and 1070 fathoms. As the male was hitherto unknown, its characteristic points are appended.

Length $3\frac{1}{2}$ millim. Head has small but moderately long crest (fig. 1) extending to almost between the eyes. Anterior antennæ (fig. 2) not quite so long as the cephalothorax, the relative lengths of the twenty-two joints being about as follows:—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
4	6	3	3	3	3	3	4	2	5	2	4	4	5	5	5	5	5	9	3	3	3*

The two branches of the posterior antennæ (fig. 3) are of nearly equal length. The first four pairs of swimming-feet similar to those of the female. The fifth pair (fig. 4) two-branched, prehensile, one having a secondary club-like branch. The main branch of same has a long curved elaborate apical termination (fig. 5). A single small spine projects from the outer side, the inner siding having first a raised wedge-shaped surface bearing short setæ, then four strong teeth, and terminating in a series of transverse striations. The other branch terminates with a long and a short strong spine.

Scolecithrix chelifer, sp. n. (Pl. V. figs. 1-9.)

Length 6.0 millim. Cephalothorax (fig. 1) obtusely ovate, 4-jointed. Upper portion of head flattened, with sharp double rostrum. Anterior antennæ (fig. 2) 23-jointed, the proportional length of each joint being about as follows:—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
3	5	2	2	2	2	2	4	2	2	3	4	4	5	5	5	5	5	4	4	3	4	6.

Outer branch of posterior antennæ (fig. 3) about $1\frac{1}{4}$ times as long as the inner branch. Mandible (fig. 4) consists of a large powerful rounded claw, bearing a spine on the outer edge. One of the two branches bears a long 2-jointed plumose spine, and, like the other branch, several long slender spines. Anterior foot-jaw bears five branches, the first having on the outer side nine or ten crook-shaped hairs; the others have two to six long apical spines. Posterior foot-jaw (fig. 6) 4-jointed; the second joint on outer side fringed with numerous short spines; the fourth joint has several apical long spines, two of them having lateral teeth on one side. Outer branch of first to fourth pair of swimming-feet 3-jointed, the inner branch of first pair 1-jointed, that of the second pair (fig. 7) 2-jointed, and of the third and fourth 3-jointed. A peculiarity of the second, third, and fourth pairs consists in their having a partial second row of tooth-like serrations (fig. 8) on the terminal spines.

The only two specimens found were immature males, the fifth pair of feet of one of them being represented (fig. 9). Each of the two branches is composed of four joints; they are, however, asymmetrical, all the joints of one, with the exception of the ultimates, being considerably larger than the corresponding ones of the other branch. The terminal joints of each have three apical spines, the central the largest, and one inner lateral spine. The two specimens were found at 1070 and 1190 fathoms. I have named the species *S. chelifera*, on account of the remarkable claw on the mandibles: the name must not be confounded with Giesbrecht's *S. chelipes*.

Xanthocalanus Giesbrechti, sp. n. (Pl. IV. figs. 1-9.)

Female.—Length $3\frac{1}{2}$ millim. Body lengthened ovate. Rostrum absent. Cephalothorax (fig. 1) 5-jointed. Anterior antennæ (fig. 2) 25-jointed, the proportional lengths of the joints being about as follows:—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
7	11	6	4	6	5	5	10	6	7	8	9	9	11	10	11	10	10	8	8	7	9	10	8	3

Outer branch of the posterior antennæ (fig. 3) about $1\frac{1}{2}$ times as long as the inner branch. Mandible (fig. 4) 2-branched; basal segment has three long bristles on upperside; biting portion with long narrow palp. Maxilla very setose (fig. 5). Anterior foot-jaw (fig. 6) 5-branched, each terminating with several long plumed setæ. Posterior foot-jaw (fig. 7)

6-jointed. Outer branch of first to fourth pair of swimming-feet 3-jointed. Inner branch of first pair 1-jointed, but double-lobed, as in *Gaëtanus*. Inner branch of second pair (fig. 8) 2-jointed, and that of the third and fourth pairs 3-jointed. Fifth pair 2-branched (fig. 9), each 3-jointed, including basal joint, the apical joint of the right branch having four spines, the left three spines, the first two joints of each branch having their inner edges lined with short strong spines. Abdomen 4-jointed, the last very small; caudal segments somewhat quadrate, nearly twice as long as broad.

One specimen only (a female) was found at 1510 fathoms, and it is with extreme pleasure that I name it after Dr. Giesbrecht of Naples, whose colossal and magnificent book, as well as his many lesser writings, and personal friendship when at Naples on various occasions, have been of the greatest service to me.

Phaëna spinifera, Claus.

1863. *Phaëna spinifera*, Claus, Freileb. Cop. p. 189.

A fair number of this widely distributed species were taken at seven stations, at depths varying from 270 to 1610 fathoms.

Centropages typicus, Kröyer.

1848. *Centropages typicus*, Kröyer, Naturh. Tidsskr. n. ser. vol. ii. p. 588.

This well-known British species, whose further known range is the Mediterranean and the Atlantic Ocean, occurred at five stations in this collection at depths of from 270 to 1670 fathoms.

Centropages Chierchiæ, Giesbrecht.

1889. *Centropages Chierchiæ*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 811.

One specimen was taken by the surface-net. Its only previous record is from the Straits of Gibraltar.

Centropages hamatus, Lillj.

1853. *Ichthyophorba hamata*, Lillj. Clad. Ostr. Cop. p. 185.

Another of our common British species, also previously recorded from the Atlantic and from its first-known habitat, the Baltic. It occurs at four stations in the 'Oceana' collection, from the surface to 270 fathoms.

Metridia longa, Lubbock.

1854. *Calanus longus*, Lubbock, Ann. & Mag. Nat. Hist. ser. 2, vol. xiv. p. 127.

One of the commonest species in the collection. Found in thirty-three out of the forty bottles comprising the collection, at depths from 50 to 1770 fathoms.

Metridia venusta, Giesbrecht. (Pl. VI. figs. 1, 2.)

1889. *Metridia venusta*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 24.

One specimen only, and fortunately a mature male, hitherto unknown, was taken at 1570 fathoms. The general characters agree with those of the female as described by Giesbrecht, the anterior antennæ and fifth pair of swimming-feet being the main differences between the sexes.

The right anterior antenna is 26-jointed, the left 23-jointed, the latter being geniculated between the seventeenth and eighteenth joints; both are very thin in the latter half. The proportionate lengths of the joints of the left antenna are as follows:—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
9	3	3	3	3	3	2	2	3	3	3	5	6	7	8	7	3	10	6	6	8	7	2

The fifth pair of feet (fig. 2) are very elaborate; each is 2-branched, the outer ones are 4-jointed and terminated by strong spines, the left spine being more than double the length of the right. The inner branch of each foot is 3-jointed, each apical joint having two lateral and four terminal setæ. A finely setiferous lateral lamella is attached to the basal joint of each foot.

Giesbrecht's specimens were from the Pacific; so the known range of the species is now widely extended.

Metridia princeps, Giesbrecht. (Pl. VI. figs. 3, 4.)

1889. *Metridia princeps*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 24.

Three specimens of this large and well-marked species were found—one, fortunately a male, hitherto unknown, at 1410 fathoms, and two females at 1610 fathoms. The important differences between the sexes, as with the last species, are in the anterior antennæ and the fifth pair of swimming-feet.

Male (fig. 3).—Length 6.50 millim. The right antenna

is 25-jointed, that of the left 22. The comparative lengths of the joints of the latter are about as follows:—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
9	2	2	3	2	3	2	2	3	3	3	5	6	7	8	6	6	13	6	8	5	2

The geniculation in the left antenna is between the seventeenth and eighteenth joints. Fifth pair of swimming-feet (fig. 4) each a single branch with four joints, the terminal joints being long, stout, blunt spines, with a minute spine at the end of each.

Much less perceptibly than in *M. venusta*, the right caudal segment is shorter than the left.

Giesbrecht's previous records of this species are the Pacific Ocean and the Gulf of Gascogne, so its range also is much extended.

Pleuromamma abdominalis, Lubbock.

1856. *Diaptomus* (part.), Lubbock, Tr. Ent. Soc. vol. iv. p. 22.

Very common throughout the collection, occurring at twenty-seven stations at depths from 270 to 1770 fathoms. Easily recognized by its round lateral black pigment knob.

Pleuromamma gracilis, Claus.

1863. *Pleuromma gracile*, Claus, Freileb. Cop. p. 197.

A rare species, though widely distributed throughout the world. One specimen only was found, at a depth of 1570 fathoms.

Lucicutia longicornis, Giesbrecht.

1889. *Leuckartia longicornis*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 812.

One specimen was found at a depth of 1070 fathoms. The only previous record of this species is the Pacific Ocean.

Lucicutia flavicornis, Claus.

1863. *Leuckartia flavicornis*, Claus, Freileb. Cop. p. 186.

A widely distributed ocean species. Occurred at ten stations at depths from 810 to 1770 fathoms.

Lucicutia longiserrata, Giesbrecht.

1889. *Leuckartia longiserrata*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 813.

One specimen was obtained at 1275 fathoms. Its only record hitherto is the Pacific Ocean.

Lucicutia Clausi, Giesbrecht.

1889. *Leuckartia Clausii*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 812.

A few specimens of this species were taken at 510 fathoms. Its previously known range is the Mediterranean and Pacific Ocean.

Isochæta longisetosus, sp. n. (Pl. VII. figs. 1-9.)

Female.—Length 3.50 millim. Cephalothorax has five segments. Rostrum appears to consist of two long, narrow, ribbon-like bodies. Anterior antennæ 23-jointed, the relative lengths being much as follows:—

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
6	2	3	2	2	2	2	2	2	3	3	3	3	4	4	4	4	4	4	3	2	2	2

They are sparingly setiferous. Each antenna has a dark brown seta on last joint. The two branches of posterior antennæ (fig. 2) are of about equal length; the outer branch 8-jointed, the fourth to seventh joints being a compound joint; the eighth joint nearly as long as the other seven together. From the compound joint spring a number of flat ribbon-like hairs, which, like the apical hairs, appear to be filled with very minute round granules. The inner branch springs from the basal joint at right angles to the outer, and terminates with six or eight very long ribbon-like setæ, also dark brown and granular. Mandible (fig. 3) has a main branch of three joints, terminated by long, brown, flat setæ, as described above. Two small segments, each terminated by a long slender spine, spring from the middle joint; from the basal joint arises a short stout branch, ending with spinous setæ, which appear to take the place of any biting-teeth. Maxilla (fig. 4) consists of two small 2-jointed branches proceeding from a common base, their terminal joints ending in several of the long granular setæ as described above. Anterior foot-jaws (fig. 5) long and broad, with two long spines at apex of each of two protuberances on first joint. Three very small terminal joints are also provided with long curved spines. Posterior foot-jaws (fig. 6) 7-jointed, long spines springing from each; there are also several small spines on the third and fourth joints. Abdomen 4-jointed; the first joint is nearly twice the size of any of the others; caudal setæ without the dark granular coloration. Outer and inner branch of the swimming-feet (figs. 7 & 8) are all 3-jointed, with the exception of the fifth pair (fig. 9), the inner branch of which is 2-jointed.

One specimen only of this remarkable Copepod was taken at 560 fathoms.

The long, brown, ribbon-like, granular setæ on the anterior and posterior antennæ, as well as on the mandible and maxilla, and the peculiar shape of the posterior antennæ readily distinguish this species from any other known to me.

Heterorhabdus spinifrons, Claus.

1863. *Heterochæta spinifrons*, Claus, Freileb. Cop. p. 182.

One of the most widely distributed species throughout the collection, having been taken at fourteen stations in fair abundance at depths from 375 to 1770 fathoms. It has been reported from the Mediterranean and from both Atlantic and Pacific Oceans.

Heterorhabdus papilliger, Claus.

1863. *Heterochæta papilligera*, Claus, Freileb. Cop. p. 182.

One specimen only, found at 1510 fathoms. Not before reported from the Atlantic Ocean.

Heterorhabdus abyssalis, Giesbrecht.

1889. *Heterochæta abyssalis*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 812.

Several specimens, all males (the female being still unknown), were found at three stations at depths of from 950 to 1190 fathoms. Giesbrecht's record was the Atlantic, but at the great depth of 4000 metres.

Heterorhabdus Clausi, Giesbrecht.

1889. *Heterochæta Clausii*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 812.

Found at one station only at 1410 fathoms. Its only previous record was from the Pacific.

Heterorhabdus vipera, Giesbrecht.

1889. *Heterochæta vipera*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 812.

A few specimens occurred at two stations at depths of 950 and 1410 fathoms. The Atlantic and Pacific are its known range of distribution.

Heterorhabdus longicornis, Giesbrecht.

1889. *Heterochæta longicornis*, Giesbrecht.

One specimen only (a female) was found at 1710 fathoms.

Its very long slender antennæ, taken in conjunction with its still longer caudal setæ, easily distinguish it. The Atlantic and Pacific Oceans are its recorded habitats. The male remains unknown.

Haloptilus longicornis, Claus.

1863. *Hemicalanus longicornis*, Claus, Freileb. Cop. p. 179.

Fairly common at three stations at depths from 620 to 1770 fathoms. Recorded from the Atlantic and Pacific Oceans and the Mediterranean.

Haloptilus ornatus, Giesbrecht.

1892. *Hemicalanus ornatus*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 84.

Found at two stations at 810 and 1670 fathoms. Previously known only from the Mediterranean.

A strong hooked spine and plumose hairs from the other lobes of the anterior foot-jaws serve to distinguish this species.

Haloptilus spiniceps, Giesbrecht.

1892. *Hemicalanus spiniceps*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 384.

One specimen only from a depth of 500 fathoms was found. Its only previous record is the Mediterranean.

Augaptilus filigerus, Claus.

1863. *Hemicalanus filigerus*, Claus, Freileb. Cop. p. 179.

A few specimens of this species were found at two stations at depths of 1065 and 1270 fathoms. Like the last species, its only previous record is the Mediterranean.

Augaptilus palumboi, Giesbrecht. (Pl. I. figs. 1, 2.)

1889. *Augaptilus palumbii*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 813.

The only specimen found (fig. 1) was taken at 1070 fathoms, and fortunately proved to be a male, hitherto unknown.

The chief differences between the male and female are in the anterior antennæ and the fifth feet; the latter, however, in this specimen (fig. 2) are unfortunately immature. The right and left anterior antennæ vary considerably (fig. 1). The right is 14-jointed, the third, fourth, and fifth joints being short and swollen; the left is 19-jointed, the joints 2 to 6 being short and swollen. Waving setæ are numerous throughout the length of both antennæ. Length of male 4 millim.

Its only previous record is the Pacific Ocean.

Augaptilus Rattrayi, T. Scott.

1893. *Augaptilus Rattrayi*, T. Scott, Tr. Linn. Soc. ser. 2, Zool. vol. vi. p. 36.

One specimen only of this rare species, hitherto only known through Mr. Scott's excellent report on "Entomostraca from the Gulf of Guinea," was taken at 1070 fathoms. The short, crescent-shaped, flat-topped filaments which adorn the maxillæ and foot-jaws are quite diagnostic of this species.

Augaptilus hecticus, Giesbrecht.

1889. *Augaptilus hecticus*, Giesbrecht, Atti Acc. Lincei Rend. ser. 4, vol. v. p. 814.

A single male of this species was found at 1275 fathoms. The elegant plumes near the extremity of the anterior antennæ and on the caudal setæ, as shown by Giesbrecht, were not present, probably lost. Previously known from the Mediterranean, Gulf of Guinea, and Pacific Ocean.

Augaptilus longicaudatus, Claus.

1863. *Hemicalanus longicaudatus*, Claus, Freileb. Cop. p. 129.

A few specimens were found at 1070 and 1670 fathoms.

This species is easily recognized by the flat-topped button-like filaments attached to the setæ of the foot-jaws, similar to those of *A. Rattrayi*, which, as before referred to, are crescent-shaped.

Its hitherto known areas of distribution are the Mediterranean, Gulf of Guinea, and Pacific Ocean.

Arietellus setosus, Giesbrecht.

1892. *Arietellus setosus*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 415.

A male and female of this very handsome species were taken at 500 and 1300 fathoms respectively. The beautiful yellow coloured plumose caudal setæ at once distinguish both sexes. The Mediterranean and Gulf of Guinea are its hitherto known range.

Phyllopus bidentatus, Brady. (Pl. III. figs. 6-9.)

1883. *Phyllopus bidentatus*, Brady, Rep. Voy. Chall. vol. viii. p. 78.

This species is known only from three specimens—first, a female described by Brady from the 'Challenger' Expedition taken down to 2650 fathoms in the South Atlantic; the second, also a female, by Giesbrecht at 1800 metres, from the Pacific; and now the third, a male from the North Atlantic at 560 fathoms, in the present 'Oceana' collection.

The general agreement of my specimen with Giesbrecht's description and drawings clearly demonstrates it to be *P. bidentatus*. The differing characters of the male are as under. Brady supposed his specimen to be a male, but, as Giesbrecht points out, it certainly is a female. The latter authority failed to find the "stout bidentate process" as described by Brady as existing, produced ventrally, on the last thoracic segment. My specimen certainly has this process, though not so pronounced as in Brady's drawings, and only on the right side. The left side termination, however, is not clearly defined, so the "process" may have been lost. Length 2.75 millim. (fig. 6). Right anterior antenna (fig. 2) 24-jointed, the left (fig. 3) 20-jointed, the latter having a geniculation between the sixteenth and seventeenth joints. In the right the joints after the twelfth are less than half the width of the previous ones. The relative lengths of the joints are in about the following proportions:—

Right.																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
16	4	4	6	4	4	4	3	3	3	3	3	4	6	6	8	10	12	14	16	12	10	10	12

Left.																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
20	6	6	6	6	6	3	4	3	3	4	4	8	12	14	12	12	16	14	12

The fifth pair of swimming-feet (fig. 4) consists of two branches, each 3-jointed, with one common basal joint. A lamellated process projects from the inner side of the first joint on the right, and a smaller one from the inner side of the second joint on the left. The terminal joint of the right consists of a strongly muscular chelate organ, that of the left being rather smaller and apically obtuse and also very muscular.

Anomalocera Patersoni, Templeton.

1837. *Anomalocera Patersonii*, Templeton, Tr. Ent. Soc. vol. ii. p. 34.

It was rather surprising to find only one specimen of this large brilliantly coloured species, well known as occurring often in dense shoals round our coasts, and known also in the Mediterranean and in the Atlantic and Pacific Oceans. It was taken by the surface net.

Acartia Clausi, Giesbrecht.

1863. *Dias longiremis* (part.), Claus, Freileb. Cop. p. 193.

One of our commonest British species. Well known in

the Mediterranean and Atlantic Ocean, and reported from Puget Sound in the Pacific. It was found at fifteen stations in this collection, from the surface to 1670 fathoms. As only careful examination can readily determine this species from the next, *A. longiremis*, some not so examined may belong to the latter species.

Acartia longiremis, Lillj.

1853. *Dias longiremis*, Lillj. Clad. Ostr. Cop. p. 181.

Considerably rarer than the last species, *A. Clausi*, being hitherto known only round our own coasts and in the Baltic and North Sea south of Greenland. The presence of a few small spines on the abdomen and a difference in the fifth pair of feet of this species constitute the chief difference between this species and the preceding, *A. Clausi*. They were formerly included as one species.

Acartia discaudata, Giesbrecht.

1881. *Dias discaudatus*, Giesbrecht, Zool. Anz. vol. iv. p. 257.

A few specimens were found at a depth of 374 fathoms. It differs from the last two species in appearance by its rounded short furcal segments. The Baltic, North Sea, and our own shores have been hitherto its recorded habitats.

Acartia centrura, Giesbrecht.

1889. *Acartia centrura*, Giesbrecht, Atti Acc. Lincei Rend. vol. v. p. 25.

One specimen of this rare species was taken at 810 fathoms. Its small terminal spines lateral to the cephalothorax easily distinguish it from the three preceding species. Its only previous record is the Red Sea.

Mormonilla phasma, Giesbrecht.

1891. *Mormonilla phasma*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 532.

One of the more common species of the collection, occurring at nine stations in fair quantity at depths from 810 to 1610 fathoms; and previously known only from a few specimens reported by Giesbrecht from the Pacific, and by T. Scott from the Gulf of Guinea. Its long, transparent, slender form and thin, 5-jointed, setose antennæ easily distinguish it from any other known species.

Oithona similis, Claus.

1863. *Oithona helgolandica*, Claus, Freileben Cop. p. 104.

One of the commonest species in the collection, occurring plentifully at twenty-eight stations at depths from the surface to 1710 fathoms. It is abundant throughout the northern seas, extending to the Mediterranean and the Canary Islands and Atlantic Ocean.

Oithona nana, Giesbrecht.

1892. *Oithona nana*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 549.

Only one specimen, from 1610 fathoms, was noticed, though, possessing no strong mark for recognition, others may have been passed over. Its blunt broad head is its distinctive feature.

Thorellia brunnea, Boeck.

1864. *Thorellia brunnea*, Boeck, Oversigt over de ved Norges Kyster iagt. Cop. p. 26.

A northern species occasionally found in British seas, but apparently not hitherto recorded further south. One specimen was found at 270 fathoms.

Microsetella atlantica, Brady & Robertson.

1873. *Microsetella atlantica*, Brady & Robertson, Ann. & Mag. Nat. Hist. ser. 4, vol. xii. p. 130.

Common throughout the collection, occurring at twenty-eight stations at depths from 270 to 1710 fathoms. It is common in our own seas, and T. Scott reports it as plentiful about the Gulf of Guinea.

Microsetella rosea, Dana.

1847. *Canthocamptus roseus*, Dana, Proc. Amer. Acad. Boston, vol. i. p. 150.

Although not so widely distributed throughout the collection as the preceding species, it was plentiful at seventeen stations. Dana reported it from the Sulu Sea, Giesbrecht found it in the Eastern Pacific, and T. Scott in the Gulf of Guinea.

Euterpe acutifrons, Dana.

1847. *Euterpe acutifrons*, Dana, Proc. Amer. Acad. Boston, vol. i. p. 150.

One specimen of this species, not uncommon round our British shores, was taken at 950 fathoms. Dana's habitat

was Rio Negro, and it has been reported from the Mediterranean, North Sea, Canary Islands, &c.; so it has a widely distributed range.

Setella gracilis, Dana.

1852. *Setella gracilis*, Dana, Crust. U.S. Expl. Exped. p. 1198, pl. lxxxv.

This well-defined species occurred plentifully in two gatherings, taken at 1065 and 1670 fathoms respectively.

Delavalia palustris, Brady.

1868. *Delavalia palustris*, Brady, Tr. Nat. Hist. Soc. Northumberland and Durham, vol. iii. p. 134.

A fairly common species round our coasts in shallow rock-pools, but seemingly out of place in this collection! A single specimen was found at 1070 fathoms.

Clytemnestra scutellata, Dana.

1847. *Clytemnestra scutellata*, Dana, Proc. Amer. Acad. Boston, vol. i. p. 150.

The only specimen found was at 950 fathoms. This species has a wide range. Dana obtained it in the China Sea, Poppe in the Java Sea, and I have found it near Malta in the Mediterranean.

Ægisthus mucronatus, Giesbrecht.

1891. *Ægisthus mucronatus*, Giesbrecht, F. Fl. Neapel, Cop. vol. xix. p. 573.

Several specimens of this species were obtained from eight stations at depths of from 375 to 1570 fathoms. One specimen was found by Giesbrecht in the Pacific Ocean near the Galapagos Islands. T. Scott, in his excellent monograph "Entomostraca from the Gulf of Guinea," describes his *Æ. longirostris*, which, from his description and drawings, I believe to be *Æ. mucronatus*, Giesbrecht (the species before us). Scott says "they do not agree with *Æ. aculeatus*, Giesbrecht," but he appears to have overlooked *Æ. mucronatus*! Its long pointed rostrum is very diagnostic.

Ægisthus aculeatus, Giesbrecht.

1891. *Ægisthus aculeatus*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 572.

Evidently much less common in the district traversed for this collection, one specimen only having been obtained. Giesbrecht's two specimens were taken along with *Æ. mucronatus*, from which the present species is easily distinguished by its small sharp rostrum.

Oncaea mediterranea, Claus.

1863. *Antaria mediterranea*, Claus, Die freileb. Cop. p. 159.

This appears to be a common and widely distributed species, its range extending from Spitzbergen to the Mediterranean, and to the Atlantic and Pacific Oceans. It occurred at fifteen stations in fair quantity at depths from 500 to 1710 fathoms. It is brilliantly coloured during life.

Oncaea minuta, Giesbrecht.

1892. *Oncaea minuta*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 591.

Much rarer than the last species. It occurred at three stations at depths from 610 to 1275 fathoms. Its small size is a distinguishing feature. The male appears to be unknown.

Concaea rapax, Giesbrecht.

1891. *Concaea rapax*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 605.

A common species throughout the collection, occurring at twenty-eight stations. Giesbrecht found a few specimens in the Pacific, west of the Galapagos Islands; but I do not find other records. Its known range is therefore now widely extended.

Sapphirina salpæ, Claus.

1849. *Sapphirina iris*, Dana, Proc. Amer. Acad. Boston, vol. ii. p. 8.

One specimen only of this species, and the only specimen of the large genus *Sapphirina*, was taken at 810 fathoms. Its known range extends over the Mediterranean and the Atlantic and Pacific Oceans.

Lichomolgus liber, Brady & Robertson.

1875. *Lichomolgus liber*, Brady & Robertson, Brit. Assoc. Rep. 1875, p. 197.

One specimen, probably a stray one, was found at 270 fathoms. I am not aware that it has been previously reported outside our British coasts.

Corina granulosa, Giesbrecht.

1891. *Corina granulosa*, Giesbrecht, F. Fl. Neapel, vol. xix. p. 645.

A rare species, closely allied to the genus *Corycaeus*, but differing in its abdominal segments. Only one specimen (a female) occurred, at 500 fathoms. Giesbrecht also had only one specimen (also a female). His was from the South Pacific, mine from the Atlantic.

Corycæus venustus, Dana.

1849. *Corycæus venustus*, Dana, Proc. Amer. Acad. Boston, vol. ii. p. 8.

A few specimens of this species were found at three stations, extending in depth from the surface to 650 fathoms. Dana's habitat was Kingsmill Island, Brady obtained it in the South Atlantic, and I have found it in the Mediterranean and about the Canary Islands.

Corycæus anglicus, Lubbock.

1857. *Corycæus anglicus*, Lubbock, Ann. & Mag. Nat. Hist. vol. xx. p. 401.

One of the smallest in size of the genus. Hitherto chiefly known from Heligoland and about the western coasts of Britain. It occurs at three stations in this collection at from 270 to 374 fathoms. I have found it plentiful at times about the surface off the south-west of Ireland.

EXPLANATION OF THE PLATES.

PLATE I.

Augaptilus palumbi, Giesbrecht.

Fig. 1. Male.

Fig. 2. Fifth pair of feet of immature male.

Gaëtanus miles, Giesbrecht.

Fig. 3. Posterior foot-jaw of male.

Fig. 4. Last joint of cephalothorax, and abdomen with caudal appendages of male.

Fig. 5. Fifth pair of feet of immature male.

Spinocalanus abyssalis, Giesbrecht.

Fig. 6. Fifth pair of feet of immature male.

Gaidius pungens, Giesbrecht.

Fig. 7. Fifth pair of feet of immature male.

PLATE II.

Euchæta oceana, sp. n.

Fig. 1. Male, dorsal view.

Fig. 2. Third to sixth joints of anterior antennæ, showing papillæ.

Fig. 3. Posterior antenna.

Fig. 4. Maxilla.

Fig. 5. Mandible.

Fig. 6. Posterior foot-jaw.

Fig. 7. Foot of first pair.

Fig. 8. Fourth pair of feet.

Fig. 9. Fifth pair of feet.

PLATE III.

- Fig. 1. Scolecithrix cristata*, Giesbrecht. Male.
Fig. 2. Anterior antenna.
Fig. 3. Posterior antenna.
Fig. 4. Fifth pair of feet.
Fig. 5. Termination of one of the fifth feet, highly magnified.
Fig. 6. Phyllopus bidentatus. Male.
Fig. 7. Anterior antenna, right.
Fig. 8. Anterior antenna, left.
Fig. 9. Fifth pair of feet.

PLATE IV.

- Fig. 1. Xanthocalanus Giesbrechti*, sp. n. Female.
Fig. 2. Anterior antenna.
Fig. 3. Posterior antenna.
Fig. 4. Mandible.
Fig. 5. Maxilla.
Fig. 6. Anterior foot-jaw.
Fig. 7. Posterior foot-jaw.
Fig. 8. Second pair of feet.
Fig. 9. Fifth pair of feet.

PLATE V.

- Fig. 1. Scolecithrix chelifer*, sp. n. Male.
Fig. 2. Anterior antenna.
Fig. 3. Posterior antenna.
Fig. 4. Mandible.
Fig. 5. Anterior foot-jaw.
Fig. 6. Posterior foot-jaw.
Fig. 7. Second pair of feet.
Fig. 8. Terminal spine of ditto.
Fig. 9. Fifth pair of feet, immature.

PLATE VI.

- Fig. 1. Metridia venusta*, Giesbrecht. Male.
Fig. 2. Fifth pair of feet.
Fig. 3. Metridia princeps, Giesbrecht. Male.
Fig. 4. Fifth pair of feet.

PLATE VII.

- Fig. 1. Isochæta longisetosus*, sp. n. Female.
Fig. 2. Posterior antenna.
Fig. 3. Mandible.
Fig. 4. Maxilla.
Fig. 5. Anterior foot-jaw.
Fig. 6. Posterior foot-jaw.
Fig. 7. Fourth pair of feet.
Fig. 8. Terminal spine of same.
Fig. 9. Fifth pair of feet.